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## Application of tagging services for term analysis on visual plane in financial engineering

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### Abstract

The reciprocal integration of diverse research methods has led to the creation of new disciplines formed on the basis of the already existing knowledge domains. As a result, the glossary of such scientific discipline as financial engineering is multi-layered and manifold in composition. The transdisciplinary nature of the field has influenced the emergence of the hybrid multimodal paradigm of communication, which transfers information via multiple channels and functions on different planes, including the visual one.

The authors of the paper aim at testing the assumption that the analysis of terms on visual plane can quicken their clear recognition among the users, facilitate their registration in terminographic sources and, thus, stimulate their standardization and harmonization across the languages.

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### 1. Introduction

The trend towards mutual integration of the scientific methods specific to the particular disciplines and the growing complexity of both the existing and emerging fields of knowledge have led to the creation of new disciplines, which are formed on the basis of the already existing knowledge domains. This phenomenon, in its turn, has certainly led to the coinage of parallel forms of the terms in use because the scientific disciplines being involved

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already have the core term stock, which they might want to share but definitely not to neglect. The glossaries of such scientific disciplines as environmental economics, financial engineering, building economics, and technical management are multi-layered and manifold in composition, as they would encompass terms belonging to different categories.

The transdisciplinary nature of the field has influenced the emergence of the hybrid multimodal paradigm of communication, which makes use of different communication modes, transfers information via multiple channels and functions on different planes. The shift towards the analysis of the input data on the visual plane to facilitate information organization, cognition and communication has governed the necessity to develop visual literacy of the translators, translator trainers and field specialists. Visualization of information in general and application of graphical mathematic models in particular is a powerful tool being helpful in representing the inner structure of the transdisciplinary input data.

Within the framework of the present research, visualization is seen as the means of revealing the graphical representation of the terminological load of the given text, hence, the visual literacy is understood as the skill required to quicken the processing of terms, to construct the thematic field of the analyzed data, to conceptualize and categorize terminological units employed within the transdisciplinary field of financial engineering.

The application of various computer software programs for categorizing terms and labelling their role for information transfer should facilitate the process of text analysis, interlingual information transfer and, hence, new knowledge acquisition. However, many of the automatic resources available are not able to process information properly without reasonable human intervention. The given research is focused on analyzing the application of six Internet services with diverse visualization templates available free of charge. As the illustration to this issue, the authors of the present paper have selected an authentic article<sup>1</sup> on the theme of financial engineering and, by applying various tag-cloud and word-cloud resources, have intended to investigate the possibilities of constructing the thematic field of the given text and extracting relevant terms for further analysis.

The authors of the present paper aim at testing the assumption that the application of different tagging service visualization templates can quicken clear recognition of terms among the users involved, facilitate the process of their registration in the terminographic sources and, thus, stimulate their standardization leading to further harmonization across the languages.

## 2. Terminological system of the domain of financial engineering

The domain of financial engineering (hereinafter – FE) is a constantly evolving scientific discipline and a well-established academic practice with a variety of degree programs implemented worldwide. The transdisciplinary nature of the field of financial engineering contributes to the variety of existing terms and serves as a source of terminology innovation. The complicated structure of the field is reflected in the diverse and multi-layered structure of its glossary. Due to its manifold nature in composition, the glossary would encompass terms belonging to different categories, such as:

- Terms of the source domain 1 (*SD1*),
- Terms of source domain 2 (*SD2*),
- Terms of source domain *n* (*SDn*),
- Terms created anew for the needs of the particular domain (*NDT*),
- Terms borrowed anew for the needs of the particular domain (*NBDT*),
- Terms rejected due to several reasons (*DRT*),
- Terms created ad hoc in the particular real-life situation (*AHDT*).

Terminological knowledge is a complex construct seen as a combination of different types of information, including *lexical* (meaning encoded in the lexical item), *textual* (meaning encoded in the text/utterance) and *visual* (meaning encoded in the image).

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<sup>1</sup> The article “Evaluation of Latvian Commercial Banks Performance” taken for the analysis is written by Eriņš and Eriņa and published in the proceedings of the 18th World Multi-Conference on Systemics, Cybernetics and Informatics in 2014.

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